
- **Basic Research**

Relationship between Stress, Burnout, and Resilience among Emergency Department Nurses during COVID-19 Pandemic

Rania A. Zaki*, **Zienab Mohammed Ibrahim Morsi****,

Fatma Mohammed Ibrahim Morsi ***

Assistant professor of psychiatric/mental health nursing. Faculty of nursing- Ain Shams University*

Lecturer of Psychiatric/Mental Health Nursing -Faculty of Nursing -MTI **

Lecturer of Psychiatric/Mental Health Nursing- Faculty of Nursing - Ain Shams University***

Abstract

Background: COVID-19 has a significant impact on front-line health care staffs especially they are being the backbone of the fight in the first line of epidemic prevention and control, which endure heavy work tasks, high risk of infection, and work pressure, burnout, and has become a potential stressor, with a profound influence on their psychological well-being and psychological resilience. **Aim of the study:** This study aimed to determine the relationship between stress, burnout, and resilience among emergency departments` nurses during COVID-19 Pandemic. **Design:** A descriptive relational design was utilized in this study. **Subject:** A purposive sample of a total one hundred and twenty of emergency departments` nurses **Setting:** The study was conducted at Emergency Departments at Ain Shams University Hospitals, Cairo, Egypt. **Tools of data collection:** Demographic interview questionnaire, COVID Stress Scale, Copenhagen Burnout Inventory (CBI) and Resilience Scale for Adults (RSA). **Results:** there were moderate negative correlation between psychological resilience and COVID-19 related stress, and high negative correlation between psychological resilience and burnout among emergency departments` nurses under the study. Also, there was a strong positive correlation between COVID-19 related stress and burnout. as the majority of emergency departments` nurses understudy had high level of COVID-19 related stress and burnout while more than two thirds of them had low psychological resilience. **Conclusion:** It can be concluded that, increased COVID-19 related stress level and burnout level lead to decreased psychological resilience among emergency departments` nurses under the study during COVID-19 pandemic. **Recommendation:** Development and implementation of psychosocial counseling intervention for front-line nursing staff to enhance their coping and resilience during the period of COVID-19 pandemic.

Key words: Stress, Burnout, Resilience Emergency Department Nurses, COVID-19 Pandemic

Introduction

The World Health Organization (WHO) declared the outbreak of COVID-19, a novel coronavirus disease, to be a public health emergency of worldwide significance in January 2020. COVID-19 poses a significant danger of spreading to other countries, according to the WHO. COVID-19 was declared a pandemic by the World Health Organization (WHO) in March 2020 **(WHO, 2020)**.

In China nearly a fifth of COVID-19 patients progressed to severe phases, characterized by acute respiratory distress syndrome, septic shock, complicated metabolic acidosis, hemorrhage, and coagulation dysfunction **(Surveillances, 2020)**.

The COVID-19 pandemic is a significant health threat with global implications for public health. COVID-19 is a pneumonia-like disease that is caused by a novel coronavirus that first appeared in China's Wuhan Province. COVID-19 has proven to be a contagious, and fatal disease that has caused serious damage to the nation's health and economy in a short period of time. The COVID-19 outbreak has resulted in many mental health outcomes depending on the individual's strengths and weaknesses **(Brooks, Webster, Smith, Woodland, Wessely, Greenberg, & Rubin, 2020)**.

The emergence of COVID-19 exerted unprecedented pressure on the world's health care system and presented various challenges to its nursing workforce, potentially affecting their work first line bear a huge work pressure and psychological pressure, which may have a certain impact on their emotional state and make the medical staff susceptible to psychological stress **(Lima, de Medeiros Carvalho, Lima, de Oliveira Nunes, Saraiva, de Souza, & Neto, 2020)**.

Nursing is well-known as a dominant factor in the prevention of both primary and secondary infectious diseases. Nursing is considered to be the first line of defense in the prevention of diseases and the alleviation of suffering during and after treatment of any disease, including COVID-19, regardless of a country's socioeconomic status **(WHO, 2020)**.

Nurses are on the front lines of the COVID-19 outbreak response, and as a result, they are exposed to dangers that put them at risk of infection. Exposure to patients with a high viral load, long work hours, psychosocial distress, dilemma, burnout due to exhaustion, stigma, tension, and anxiety are all risks **(Chandra, & Vanjare, 2020)**.

In hospitals, in the effort to facilitate services, many service units are formed. The Emergency Unit is the health department that coordinates emergency assistance that provided 24 hours a day. Emergency services are offered to people who are suddenly in a

state of emergency or are on the danger of being critical, putting their lives or limbs in risk if they do not seek immediate care **(Pragholapati, Yosef, & Soemantri, 2020)**.

Emergency department “ED” nurses are the first healthcare professionals to care for patients infected with the novel contagious disease. In fact, there were many cases of exposure to the disease in EDs during the COVID-19 outbreak compared to nurses in other areas **(Pragholapati, et al., 2020)**. ED nurses are faced with hectic, unpredictable, and ever-changing situations. Because they deal with various diseases, traumatic events, and urgent situations, they do not have enough time for recovery, putting them under persistent stress. As a result, ED nurses are reported to experience much higher burnout than nurses in other hospital departments **(Adriaenssens, De Gucht, & Maes, 2015)**.

The major stressors added to the nurses during the pandemic are the physical strain of personal protective equipment's (PPEs) as dehydration, heat, and exhaustion, physical isolation as they cannot touch others, constant vigilance regarding infection control procedures, fears about infection, and inner conflicts about competing needs and demands **(Menon, Padhy, & Pattnaik, 2020)**.

Nurses spend physical, emotional, and mental energy on patient care and treatment. The recent COVID-19 outbreak increases the risk of burnout, as it creates a crisis in the health system. Factors such as prolonged working times, excessive workload, and high risk of contamination may cause excessive energy consumption, thereby creating a risk for burnout syndrome negative feelings, such as emotional exhaustion, depression, insecurity, despair, and uneasiness that increase the emotional exhaustion, which can be defined as the feeling of excessive physical and emotional fatigue, that related to exposure to COVID-19 patients and concerned to be infected and spreading the virus to their families, friends, and colleagues **(Shen, Zou, Zhong, Yan, & Li, 2020)**.

Burnout is a psychological syndrome that is the result of long-term, job-specific, physical and emotional exhaustion from interpersonal stress that results in detachment, cynicism, reduced feelings of efficacy and accomplishment and may have significant impacts on job performance and satisfaction **(Luo, 2020)**. The COVID-19 pandemic had a massive impact on healthcare systems, increasing the risks of psychological distress in health professionals. Burnout is a prolonged response to chronic emotional and interpersonal stressors on the job and is defined by the three dimensions of emotional exhaustion, cynicism, and personal inefficacy **(Jose, Dhandapani, & Cyriac, 2020)**.

Resilience is an innate trait, considered to be the physical and psychological characteristics possessed by individuals. Consistent patterns of psychological qualities associated with successful adaptation include emotional intelligence, altruism, and an active coping style in confronting a stressor **(Schreiber, Cates, Formanski, & King, 2019)**. Also,

It has been defined as a protective factor against stress and depression. In the acute period of traumatic or compulsive life events individuals may experience negative emotional states; however, they can often adapt over time. In adapting, which is a time-consuming and ongoing process, the effort required to take action and to recover effectively is called psychological resilience. It has an important role in enabling healthcare professionals to adapt to and deal with the COVID-19 outbreak effectively (**Barello, Palamenghi, & Graffigna, 2020**).

Psychological resilience, a concept of personality traits having protective effects against burnout, is identified. Resilience is a person's adaptation to important stressful sources such as trauma, threat, tragedy, familial and relationship problems, workplace, and financial issues. Resilience is important for nurses, who encounter many risk factors in their day-to-day work life and have to provide standard care to the patients. With an increase in resilience, the nurses can cope with the negative conditions, better adaptation and achievements are increased, and thereby they experience a better quality of working experience, which minimizes the burnout among them (**Hart, Brannan, & De Chesnay, 2014**).

Significance of the study

COVID-19 has a significant impact on public health and poses a challenge to medical staffs, especially nursing staffs who are exposed to and in direct contact with patients with a profound influence on their psychological wellbeing. The psychological impact on nurses working during the pandemic is an important consideration. Nurses being the backbone of the fight in the first line of epidemic prevention and endure heavy work tasks. Nurses play a main known role during the global response to COVID-19, which is helping patients and address their concerns. However, nurses are expected to play an even more vital role in preparing for and management of this pandemic. The role of nurses in pandemic starts even before the disease has an opportunity to give rise to widespread destruction. Nurses caring for confirmed or suspected patients are more likely to be exposed to high risk of infection, high level of burden of care, and negative psychological stress than the general population. If recovery does not involve termination of the acute adaptive response, deleterious effects on psychological and physiological function can occur.

Health care workers, especially nurses, who come close in contact with confirmed or suspected patients when providing care are often left stricken with inadequate protections from contamination, high risks of infection, working burnout, fear, anxiety, and depression (**Hu, Kong, Li, Han, Zhang, Zhu, & Zhu, 2020**).

The adverse psychological outcomes following the COVID-19 epidemic found significant emotional distress was present in 18–57% of healthcare workers (**Heath, Sommerfield, &**

von Ungern-Sternberg, 2020). So, this study aims to determine the relationship between stress, burnout, and resilience among emergency department nurses during COVID-19 pandemic.

Aim of the study: This study aimed to determine the relationship between stress, burnout, and resilience among emergency department nurses during COVID-19 Pandemic

Research Questions:

What are levels of stress among emergency department nurses during COVID-19 Pandemic?

What are levels of burnout among emergency department nurses during COVID-19 Pandemic?

What are levels of resilience among emergency department nurses during COVID-19 Pandemic?

Are there relationships between stress, burnout, and resilience among emergency department nurses during COVID-19 Pandemic?

Technical Design:

1- Research design:

A descriptive relational design was utilized in this study.

Study setting

The study was conducted at Emergency Departments at Ain Shams University Hospitals, those hospitals provided care for all sectors in Egyptian community especially in Cairo.

Subject:

A purposive sample of 120 emergency departments nurses from both genders who were working at the previously mentioned setting within three months duration from beginning of March (2021) to end of May (2021) were recruited in the study.

The inclusion criteria:

Age range: from 20 to 60 years.

Gender: both genders (males and females).

Nurses who are free from neurological or psychiatric disorder.

Working for at least one year continuously with full-time employment.

Exclusion criteria:

Nurses who refused to participate in the study.

Sample Size: The subjects of the present study included 120 emergency departments` nurses at Emergency Departments at Ain Shams University Hospitals. The sample size was determined according to the following equation

$$N = \frac{n}{(n-1)B^2 + 1}$$

N=total number, n= sample size, B= proportion of error (0.05) that developed by **Thompson (2012)**.

4-Tools of data collection:

Data were collected using the following tools:

1- Demographic interview questionnaire sheet: This sheet was constructed by the researchers, and it included: age, gender, marital status, level of education, occupation...etc.

2-COVID Stress Scale: It was constructed by **Taylor, et al., (2020)**, and has very good reliability and validity. The scales offer promise as tools for better understanding the distress associated with COVID-19 and for identifying people in need of mental health services. It is 53-items scale and has the following domains: (1) Fears about the dangerousness of COVID-19 (14 items), (2) fears about sources of COVID-19-related contamination (i.e., objects, surfaces; 8 items), (3) COVID-19-xenophobia (i.e., fears that foreigners are sources of COVID-19; 7 items), (4) fears about the personal social and economic consequences of COVID-19 (e.g., fears of disruption in the supply chain, fears of looting or rioting; 10 items), (5) COVID-19-related checking (e.g., checking news media or social media, seeking reassurance from friends or medical professionals; 7 items), and (6) traumatic stress symptoms related to COVID-19 (e.g., unwanted intrusive thoughts or nightmares relating to COVID-19; 7 items).

The fear-related items (domains 1–4) are rated on a 5-point scale ranging from 0 (not at all) to 4 (extremely) and the checking and traumatic stress items were rated on a 5- point scale ranging from 0 (never) to 4 (almost always).

The scales performed well on various indices of reliability and validity. The scales were intercorrelated, loading on a single higher-order factor, thereby providing evidence of a

COVID19 Stress Syndrome. Reliability of this scale was excellent ($\omega = .95$) (Taylor, et al., 2020). **Scoring:** Higher score indicates high COVID-19 related stress

CSS	Low	High
Fears about the dangerousness of COVID-19	0-42	42.1-56
fears about sources of COVID-19-related contamination	0-24	24.1-32
COVID-19-xenophobia	0-21	21.1-28
Fears about the personal social and economic consequences of COVID-19	0-30	30.1-40
COVID-19-related checking	0-21	21.1-28
Traumatic stress symptoms related to COVID-19	0-21	21.1-28
Total COVID-19 stress	0-159	159.1-2121

3-Copenhagen Burnout Inventory (CBI): it was developed by Kristensen, Borritz, Villadsen, & Christensen, (2005), and modified by the researchers to assess burnout among nurses during

COVID-19 pandemic by adding “due to COVID-19”. The CBI is a 19-item questionnaire measuring three burnout sub-dimensions. The personal burnout scale has six items and measures the degree of physical and psychological fatigue and exhaustion experienced by a person regardless of their participation in the workforce (i.e., a generic burnout scale); e.g., “How often do you feel tired?”; “How often do you feel worn out?”. The work-related burnout scale has seven items and measures the degree of physical and psychological fatigue related to work e.g., “Do you feel burnt out because of your work?”; “Do you feel worn out at the end of the working day?”. Patient-related burnout scale has six items and measures the degree of physical and psychological fatigue experienced by people who work with patients e.g., “Do you find it hard to work with patients?”; “Are you tired of working with clients?”.

Scoring: responses were made on a 5-point scale ranging from 100 (always), 75 (Often), 50 (Sometimes), 25 (Seldom), to 0 (never/almost never), so that higher scores indicate more burnout. Presence of burnout as low if it was less than (< 50) and high if it was more than or equals (≥ 50). The scale was found to have a 0.87 internal consistency reliability coefficient (Kristensen, et al., 2005).

4-Resilience scale for adults (RSA):It was designed by **Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, (2005)**.It consists of 33 items and six sub dimensions: The content of the factors were as follows: (1) **Perception of self** contains items that measure confidence in their own abilities and judgements, self-efficacy and realistic expectations; (2) **Planned future** measures the ability to plan ahead, have a positive outlook, and be goal oriented; (3) **Social competence** contains items measuring levels of social warmth and flexibility, ability to establish friendships, and the positive use of humor; (4) **Structured style** measures the preference of having and following routines, being organized, and the preference of clear goals and plans before undertaking activities; (5) **Family cohesion** measures whether values are shared or discordant in the family and whether family members enjoy spending time with each other, have an optimistic view of the future, have loyalty toward each other, and have the feeling of mutual appreciation and support; and (6) **Social resources** measure availability of social support, whether they have a confidante outside the family (such as friends or other family members that appreciate and encourage them), and whether they may turn to someone outside the family for help if needed. It was used to measure the psychological resilience of nurses during outbreak of COVID19.

Scoring System: RSA has 5-point Likert response options ranging from 1 = strongly disagree to 5 = strongly agree. The total RSA score was dichotomized into a low (0) or a high (1) resilience. 17 item scores are negatively worded and reverse coded. The validity and reliability tests using Cronbach's α coefficient which was 0.89 for the entire RSA and ranged between 0.82 and 0.86 for its sub-dimensions (**Friborg, et al., 2005**).

Operational Design:

1. Preparatory phase:

It included reviewing current, local, and international related literature, and theoretical knowledge using books, articles, internet, periodicals, and journals.

Language specialists translated the selected tools into Arabic and then back translated them into English, with any inconsistencies between the back translation and the original tools being considered as a translation error.

Tool validity and reliability:

It was ascertained by experts from Psychiatric/Mental Health Nursing, medical/surgical, and Community Health Nursing, their opinions were elicited as regards to the tool format layout, and knowledge accuracy and relevance between translated and original copies,

Internal consistency (Cronbach alpha) and Pearson correlation coefficient (r) were tested for each tool.

Tool	Reliability “Pearson’s r”	Cronbach’s coefficient
COVID Stress Scale	0.972	0.864
Copenhagen Burnout Inventory	0.889	0.791
Resilience scale for adults	0.695	0.753

Pilot study:

A pilot study was conducted on 12 of emergency departments` nurses to test the designed assessment tool, its applicability on the sample, the time needed to fill in the sheets, and to identify obstacles or problems in data collection. Accordingly, no modifications were done.

Administrative Design:

Official letters were issued from the faculty of nursing to the director of Ain Shams university hospitals, explaining the aim of the study and requesting their permission for data collection and participation of nurses in the research process.

Ethical considerations:

The researcher emphasized to nurses that the study was voluntary and anonymous. Emergency departments` nurses had the full right to refuse to participate in the study or to withdraw at any time without giving any reason.

Field work:

Data collection was carried out from beginning of March 2021 to the end of May 2021. Data was collected through two days weekly on (Sunday and Tuesday) in emergency departments at Ain Shams University hospitals that affiliated to Ain Shams University. At beginning the researchers explained the aim of study and obtained oral approval from each nurse to participate in the study. Every nurse was interviewed individually by the researcher to fill in perceived stress scale, burnout scale and resilience scale. Time needed for data collection ranged from 15 to 25 minutes for each nurse. All emergency departments` nurses (male and female) who agreed to participate in the study were assured that the information collected would be treated confidentially and that it would be used only for the purpose of the study.

II. Statistical Design:

The statistical analysis of data was done by using computer software for excel program and statistical package for social science SPSS version 20.0. The collected data were organized,

categorized, tabulated, and analyzed. Data were presented in tables and figure using actual numbers and percentage of tables. The statistical significance and association were assessed using Mean and stander deviation, chi square, and)r-test(Pearson correlation coefficient. The observed differences, associations were

$P > 0.05$ Not significant (NS)

$P < 0.05$ Significant (S)*

$P < 0.001$ High significant (HS)**

Results

Table (1) shows that 71.7%of emergency department nurses under the study were in age group from $35 \leq 50$ years old, and lived with families constituting of 3-4 persons, 50.8% of them were female and diploma nurse.51.6% of them had from $5 \leq 10$ years of experience. Regarding their marital status, it was found that, 64.2% were married and worked as a staff nurse and 67.5% of them had inadequate monthly income, meanwhile the majority of them 87.5% are lived in urban area.

Figure (1) illustrates that,97.5% of emergency department nurses under the study had high fears about sources of COVID-19-related contamination, 95.8% of them had high fears about the dangerousness of COVID-19, 94.2% of them had traumatic stress symptoms related to COVID-19, 90% of them had high COVID-19-related checking, 75.8% of them had high fears about the personal social and economic consequences of COVID-19, and 65.8% of them had high COVID-19-xenophobia.

Table (2) clarifies that 92.5% of emergency department nurses under the study had high level of COVID-19 related stress while only 7.5% of them had low level of COVID-19 related stress. Also, there was a highly statistically significant differences between levels ofCOVID-19 related stress among nurses under the study.

Figure (1) illustrates that, 84.2% of emergency department nurses under the study were suffering from work related burnout, 78.3% of them had personal related burnout, and 76.7% of them had patient-related burnout.

Table (3) displays that, 87.5% of emergency department nurses under the study had high level of burnout while 12.5% of them had low level of burnout. Also, there was a highly statistically significant differences between levels of burnout among emergency department nurses under the study.

Table (4) shows that 78.3% of emergency department nurses under the study had their psychological resilience in family cohesion followed by 52.5% of them had their psychological resilience in social competence. While 69.2%, 65.8%, 62.5, and 60.8 of them had low psychological resilience in social resources, structured style, perception of self, and perception of the future respectively. Also, there was a highly statistically significant differences between psychological resilience subscales among emergency department nurses under the study.

Table (5) reveals that, 75.8% of emergency department nurses under the study had low level of psychological resilience, while 24.2% of them had high level of psychological resilience. Also, there was a highly statistically significant differences between levels of psychological resilience among emergency department nurses under the study.

Table (6) shows that there were moderate negative correlation between psychological resilience and COVID-19 related stress, and high negative correlation between psychological resilience and burnout among emergency department nurses under the study in which $r = -.643$ and $-.775$ at $p = 0.001$ respectively. Also, there was a strong positive correlation between COVID19 related stress and burnout in which $r = .839$ at $p = 0.001$.

Table (1): Distribution of emergency departments` nurses under study according to their demographic characteristics.

Items	Staff Nurses	
	No. (120)	%
Age		
• 20 ≤ 35 Years old	19	15.8
• 36 ≤ 50 Years old	86	71.6
• 51- 60 Years old	15	12.5
Mean ± SD	37.51 ± 6.8	
Gender		
• Male	59	49.2
• Female	61	50.8
Marital Status		
• Single	20	16.7
• Married	77	64.2

• Widow	10	8.3
• Divorced	13	10.8
Occupation		
• Nursing aides	16	13.3
• Staff nurse	77	64.2
• Head nurse	27	22.5
Educational level		
• Diploma	61	50.8
• Technician	21	17.5
• Baccalaureate	29	24.1
• Master	9	7.5
• Doctorate	0	0
Years of experience		
• $1 \leq 5$ years	34	28.3
• $5 \leq 10$ years	62	51.6
• > 10 years	24	20
Residence		
• Urban	105	87.5
• Ruler	15	12.5
Monthly income “from participant point of view”		
• Adequate	39	32.5
• Inadequate	81	67.5
Family Size		
• 3-4 persons	86	71.6
• 5-6 persons	19	15.8
• More than 6 persons	15	12.5

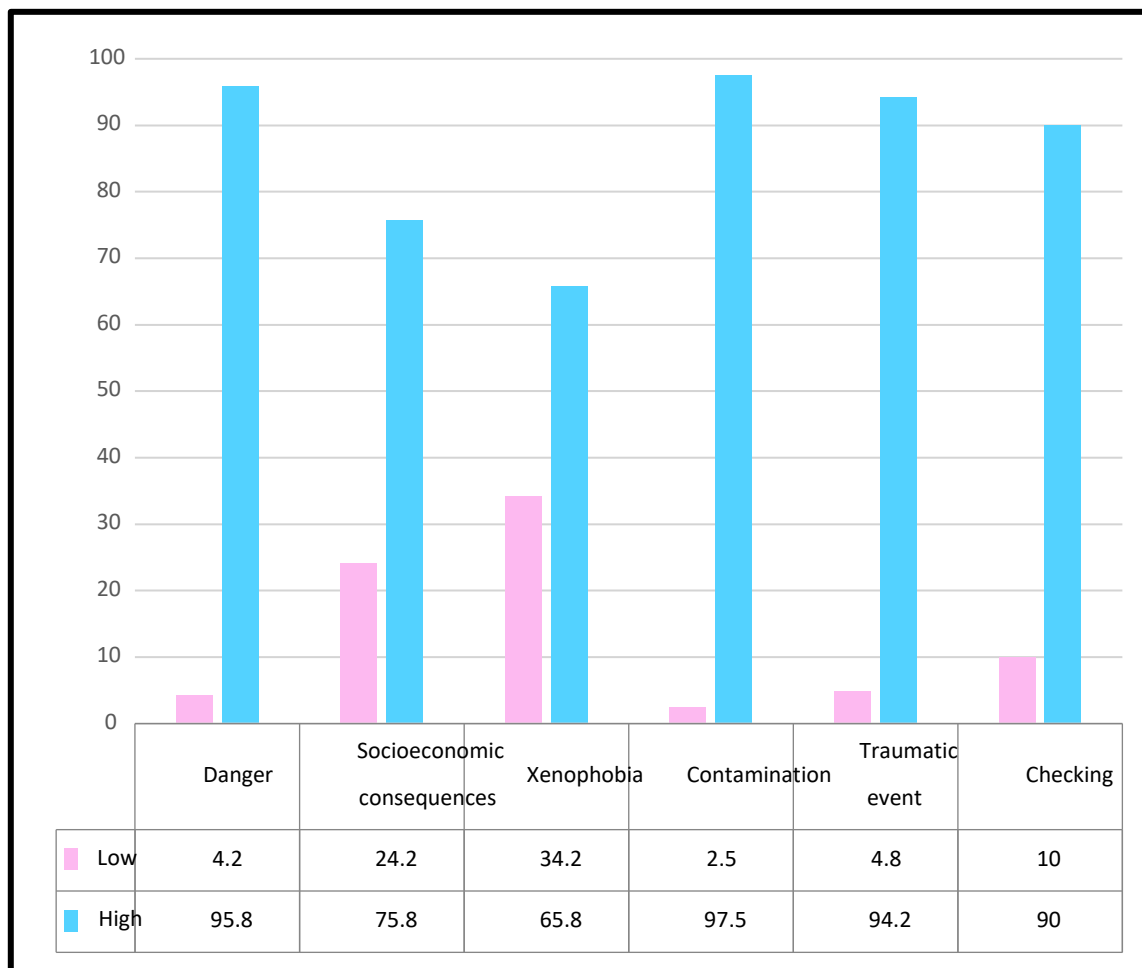


Figure (1): Distribution of emergency departments` nurses under the study according to COVID-19 stress subscale

Table (2): Total levels of COVID-19 related stress among emergency departments` nurses under the study.

levels of COVID-19 related stress	No.	%	X ²	P- Value
▪Low	9	7.5	27.143	0.001
▪High	111	92.5		

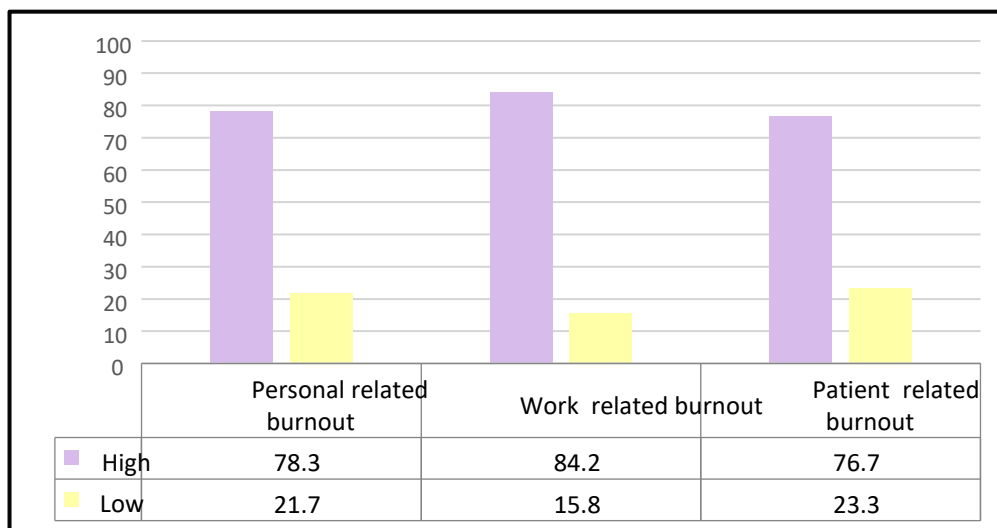


Figure (2): Distribution of emergency departments` nurses under the study according to burnout subscale

Table (3): Levels of burnout among emergency departments` nurses under the study

Level of Burnout	No.	%	X ²	P-Value
Low burnout	15	12.5	29.625	0.001
High burnout	105	87.5		

Table (4): Distribution of emergency departments` nurses under the study regarding their psychological resilience subscales.

Subscales	Psychological Resilience		X ²	P- Value
	Low	High		
	No. (%)	No. (%)		
▪ Perception of self	75 (62.5)	45 (37.5)	35.19	0.001
▪ Perception of future	73 (60.8)	47 (39.5)		
▪ Social competence	57 (47.5)	63 (52.5)		
▪ Family cohesion	26 (21.7)	94 (78.3)		
▪ Social resources	83 (69.2)	37 (30.8)		
▪ Structured Style	79 (65.8)	41 (34.2)		

Table (5): Total levels of psychological resilience among emergency departments` nurses under the study.

Psychological Resilience levels	No.	%	X ²	P- Value
▪ Low	91	75.8	27.143	0.001
▪ High	29	24.2		

Table (6): Correlation between stress, burnout, and psychological resilience among emergency departments` nurses under the study.

Items	Psychological Resilience	Stress
• Stress	-.643**	
• Burnout	-.775**	.839**

(**) highly statistically significant at $p < 0.001$.

Discussion

The result of the current study showed that, less than three quarters of emergency department nurses under the study were in age group from $35 \leq 50$ years, and lived with families constituting of 3-4 persons, more than half of them were females and diploma nurses with years of experience from $5 \leq 10$ years. Regarding their marital status, data analysis showed that, less than two thirds of them were married and worked as a staff nurse, also more than two thirds of them had inadequate monthly income. In addition, the majority of them lived in urban area.

The result of the present study illustrated that, the majority of emergency department nurses under the study had high fears about sources of COVID-19-related contamination, high fears about the dangerousness of COVID-19, high traumatic stress symptoms related to COVID19, and high COVID-19-related checking. Also, three quarters of them had high fears about the personal social and economic consequences of COVID-19, and two thirds of them had high COVID-19-xenophobia. Finally, the majority of emergency department nurses under the study had high level of COVID-19 related stress. This results could be due to dealing with critically ill patients and emotionally overloaded relatives is a highly challenging job for nurses working in the emergency department located in the heart of the epidemic, adding to these stressors the physical strain of personal protective equipment (PPEs), physical isolation, continuous attention regarding infection control procedures to avoid and face fears about infection, inner dilemma concerning patient`s health versus their

own and family health, as well as perceived societal stigma related to COVID-19. Moreover, decreased sleep quality and quantity, and the flash back of unforgettable persons or scene make them uncomfortable and emotionally unstable as they face the patient's aggravated, rescuing or even death condition every day. Adding to these, they often have multiple roles in addition to their own diagnosis, treatment, and nursing work as appeasing patients, accompanying patients, dealing with administrative things, and coordinating relationships, all these end up in stimulating their instinctive stress response.

This result is supported by Wu, Zhang, Wang, Zhang, Wang, Lei, & Luo, (2020), who studied " Psychological stress of medical staffs during outbreak of COVID-19 and adjustment strategy " and concluded that, nurses as a medical staff in Wuhan area, had higher psychological stress level than college students and had higher feeling of impending crisis in the outbreak of the COVID-19.

Also, this result agrees with Di Giuseppe, Nepa, Prout, Albertini, Marcelli, Orrù, & Conversano, (2021), who studied "Stress, Burnout, and Resilience among Health caseworker's during the COVID-19 Emergency: The Role of Defense Mechanisms" and provided evidence that COVID-19 outbreak has placed a particular burden on healthcare workers who are providing care on the front lines. The findings revealed that medical staff working in COVID-19 units had more psychological distress than those in other healthcare departments. Staff on the front lines reported higher levels of stress, emotional exhaustion, and depersonalization.

Finding of the present study clarified that, the majority of emergency department nurses under the study have high level of burnout; as more than four fifths of them suffered from work related burnout, more than three quarters of them had personal-related burnout and patient-related burnout. These results could be due to direct work with COVID-19 patients constitutes a cumulative trauma for frontline workers with direct effect on stress and burnout. The nurses in the frontline are working nonstop keep the outbreak under control. as they work in close contact with affected patients for longer hours, excessive physical workload, time pressure, and lack of adequate rest, all these lead to severe burnout syndrome in the form of physical and emotional exhaustion, feeling of frustration and worn out by working full-time or even extra working hours while wearing "PPEs" with lack of physical contact and difficulty in using verbal communication. Also, they were afraid of being infected by their patients or coworkers and spreading the virus to their families. In addition to that, they perceived inadequate workplace safety against COVID-19 with shortage in personnel, staff, and supplies.

This result is in accordance with Jose, et al., (2020), who studied "Burnout and resilience among frontline nurses during COVID-19 pandemic: A cross-sectional study in the emergency department of a tertiary care center", and stated that, the nurses in the emergency

during pandemic experienced a moderate-to-severe level of burnout in emotional exhaustion (29.13 ± 10.30) and depersonalization (12.90 ± 4.67) and mild-to-moderate level of burnout in reduced personal accomplishment (37.68 ± 5.17).

Also, this result is in line with Zhang, Jiang, Ni, Li, Li, Zhou, & Cao, (2021), who studied “the association between resilience and burnout of front-line nurses at the peak of the COVID-19 pandemic: Positive and negative affect as mediators in Wuhan” and mentioned that the total prevalence of burnout among front-line nurses at the peak of the COVID-19 pandemic was 51.7%, of which 15.0% were severe burnout.

This results in the same line with Lai, Ma, Wang, Cai, Hu, Wei, Wu, Du, Chen, & Li,(2020), who studied "Factors associated with mental health outcomes among health care workers exposed to Coronavirus Disease 2019."and found that burnout was found to be more prevalent in emergency department nurses and technicians than in physicians, whereas burnout, also present as a syndrome of emotional exhaustion, depersonalization, and cynicism.

Also, this result agrees with Hu, et al., (2020), who studied “Frontline nurses’ burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study”, and mentioned that the frontline nurses reported moderate levels of burnout. Moreover, 60.5%, 42.3%, and 60.6% of the frontline nurses had moderate/high Emotional Exhaustion, Depersonalization, and Personal Accomplishment, respectively, all of this indicated a high prevalence of burnout among frontlines nurses. As the COVID-19 outbreak has led to a sharp increase in admissions and presentations to hospitals and consequently impacts the workload of nurses.

Also, according to research conducted during the Middle East Respiratory Syndrome pandemic, nurses began to experience burnout after a protracted and sustained period of exposure to the deteriorating situation with no end in sight (Kang, Son, Chae, & Corte, 2018).

Results of the present study showed that, three quarters of emergency department nurses under the study had low level of psychological resilience: as more than three quarters of them had their psychological resilience in family cohesion followed by more than half of them had their psychological resilience in social competence. While more than two thirds, about two thirds and more than three fifths of them had low psychological resilience in social resources, structured style, perception of self, and perception of the future respectively.

These results may be due to nurses’ perception of stress is influenced by an overall psychological maturity that affect the nurse’s ability to cope with internal conflict and

stressful life events, whereas burnout is highly affected by direct, intense, and prolonged exposure to stressors resulting from fear of dealing with patient at period of COVID-19 pandemic.

These results are contradicted with Jose, et al., (2020) who mentioned that, near half of frontline nurses had a moderate to a high level of resilience.

These results are also contradicted with Mostafazadeh, Ghorbani-Sani, SeyedMohammadi, Ghader-jola, & Habibpour, (2021), who investigated resilience and its relationship with occupational stress and professional quality of life among nurses in COVID-19 Isolation

Wards” and mentioned that the mean score of participants’ resilience was 26.19 ± 6.2 (in the possible range of 0–40), denoting moderate to great resilience.

Also, Ou, Chen, Liang, Wen, Li, & Chen, (2021), studied “Resilience of nurses in isolation wards during the COVID-19 pandemic: a cross-sectional study” and reported that nurses in isolation wards during the COVID-19 pandemic showed relatively great resilience.

The difference may be due to nurses in the present study perceived inadequate workplace safety against COVID-19 with shortage in personnel, staff, and supplies, which contributes to high level of work stress and burnout. Also, health care workers in Egypt, at the beginning of the outbreak, faced societal stigma related to COVID-19 due to lack of society awareness about the virus which impact the nurses` resilience.

The result of the present study revealed that, there were moderate negative correlation between psychological resilience and COVID-19 related stress; high negative correlation between psychological resilience and burnout among; and a strong positive correlation between COVID-19 related stress and burnout among the studied nurses. This result supports resilience to be a significant factor affecting nurses’ perceived stress and it depends on adaptation efforts

This results at the same line with Yildirim, & Solmaz, (2020), who found on his study about"COVID-19 burnout, COVID-19 stress and resilience: initial psychometric properties of COVID-19 burnout Scale", that resilience played mediated the relationship between stress and burnout related to COVID-19.

This is also in line with Zhang, Wang, Pan, Zheng, Gao, Huang, & Zhu, (2020), who studied “Stress, burnout, and coping strategies of frontline nurses during the COVID-19 epidemic in Wuhan and Shanghai, China” and mentioned that nurses who cared for COVID-19

patients experienced considerable stress, especially nurses who were younger and who worked longer time in quarantine areas tended to present higher burnout levels.

Conclusion

It was concluded from the study that, increased COVID-19 related stress level and burnout level lead to decreased psychological resilience among emergency department nurses under the study during COVID-19 pandemic, as there were moderate negative correlation between psychological resilience and COVID-19 related stress, and high negative correlation between psychological resilience and burnout among emergency department nurses under the study. Also, there was a strong positive correlation between COVID-19 related stress and burnout.

In addition, the majority of emergency department nurses under the study had high level of COVID-19 related stress and the majority of them had high level of burnout; as more than four fifths of them suffered from work related burnout, more than three quarters of them had personal-related burnout and patient-related burnout.

Recommendation

Future studies should be planning to include adequate psychosocial support, telemedicine and informal support groups for healthcare workers who are one of our most valuable resources in the fight against the COVID-19 pandemic.

Development and implementation of psychosocial counseling intervention for front-line nursing staff to enhance their coping and resilience during the period of COVID-19 pandemic.

Stress management programs should be designed for prevention and treatment of psychological distress of frontline workers during covid 19 pandemic.

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الملخص العرب

العلاقة بين الإجهاد والإحترق والمرونة النفسية بين تمرريض قسم الطوارئ

خلال جائحة كوفيد-19

مقدمة:

تؤثر جائحة كوفيد-19 بشكل كبير على مقدمى الرعاية الصحية المتواجدين في الخطوط الأمامية، فهم يمثلون العمود الفقري للدفاع في صفوف المواجهه للوقاية من الأوبئة ومكافحتها، وبالتالي فهم مكلفين بالعديد من المهام الشاقة كما يواجهون خطر الإصابة بالعدوى بجانب الإحترق النفسي و ضغوط العمل والتي يمكن ان تؤثر بشكل عميق على سلامتهم النفسية والعقلية بجانب مرونتهم النفسية.

الهدف: هدفت هذه الدراسة إلى تحديد العلاقة بين الإجهاد والإحترق والمرونة النفسية بين تمرريض قسم الطوارئ خلال جائحة كوفيد-19.

منهجية البحث: تم استخدام التصميم الوصفي للعلاقات لعينة مكونة من مائة وعشرين ممرض/ة من أقسام الطوارئ خلال جائحة كوفيد-19. المكان: أجريت الدراسة بأقسام الطوارئ بالمستشفيات التابعة لجامعة عين شمس

أدوات البحث: تم استخدام أربع أدوات لجمع البيانات ويشمل استبيان المقابلة الديموغرافية، مقياس الإجهاد الخاص بكوفيد-19 بجانب قائمة كوبنهاجن للإحترق ومقياس المرونة للبالغين.

النتائج: أظهر تحليل البيانات أن هناك علاقة سلبية معتدلة بين المرونة النفسية والإجهاد المرتبط بكوفيد-19، وعلاقة سلبية مرتفعة بين المرونة النفسية والإحترق بين ممرضات أقسام الطوارئ تحت الدراسة. أيضًا، كان هناك ارتباط إيجابي قوي بين الإجهاد المرتبط بكوفيد-19 والإحترق. نظرًا لأن غالبية تمرريض أقسام الطوارئ كان لديهم مستوى مرتفع من الإجهاد والإرهاق المرتبط بكوفيد-19 بينما كان لدى أكثر من ثلثهم مرونة نفسية منخفضة.

الخلاصة: يمكن الاستنتاج أن زيادة مستوى الإجهاد المرتبط بكوفيد-19 ومستوى الإحترق أدى إلى انخفاض المرونة النفسية بين عينة الدراسة من التمرريض بأقسام الطوارئ أثناء جائحة كوفيد-19.

التوصيات: توفير وتطبيق خدمات المشورة النفس-اجتماعية لأطقم التمرريض المتواجدين بالصفوف الامامية لتعزيز مرونتهم النفسية وقدرتهم على المواجه والصمود خلال جائحة كوفيد-19.